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# AEROGEN

PETROL AIR SAFETY GAS FOR COUNTRY HOUSES.

*For Lighting, Heating, Cooking, Laboratory Work, and Power.*

— ALL PARTS MADE IN ENGLAND. —

Weight,  
Water,  
Electric,  
and  
Power  
Driven  
Machines.

BRITAIN'S  
BEST

The Machine with an unbroken record of 43 years, guaranteed for five years by a British Company of high repute and long standing.



Special  
Machine  
for  
Hydro-  
Carbon  
or  
Waste Gas  
Oil Spirit,  
for  
Cooking  
and  
Heating.

The Pulley Tackle is prominently illustrated to show details of the Design and Workmanship

**WATTS, FINCHAM & CO., LTD.,**

**22, Billiter Street, London, E.C. 3.**

Telegrams:—Anchoretic, Fen, London.

Telephone:—Avenue 3360 (6 lines).



# **"Aerogen" Petrol-Air Safety Gas.**

## **SAFETY.**

Aerogen Gas is an absolutely uniform mixture of air and petrol vapor. The percentage of petrol vapor is very small, air being the chief constituent. The Gas is non-explosive, and can only be ignited through the proper burners. The odour of Aerogen Gas is not disagreeable, but can be detected in the event of an escape. Accidents from gas poisoning are impossible.

## **PURITY.**

Aerogen, of all gases, is the least detrimental to the purity of the atmosphere, as it does not contain the sulphur vapors found in other gases, and very little carbonic acid is given off during combustion. It is perfectly free from soot, smell, or dust, does not blacken ceilings and decorations, nor is plant life affected in greenhouses.

## **STORAGE AND TRANSMISSION.**

The gas can be stored in any quantity and is not liable to condensation. It can be transmitted over long distances, mains have been laid in connection with several of our village and town installations over a distance of eight miles.

## **POWER.**

Aerogen Gas provides cheap and efficient power on a small scale for driving Aerogen Gas Engines, to work pumps, also Hot Air Engines for Ventilating Fans, etc.

## **ECONOMY.**

The mixture of gas recommended for efficient and most economical results is 500 cubic feet of air to 1 gallon of petrol, i.e., the "Rich" as distinct from the "Weak" mixture system. The petrol feed of the Aerogen machine may be set to give anything from 500 to 1,500 cubic feet of Petrol Gas from one gallon, namely:—any mixture from "Rich" down to very "Weak," and the machine will produce any such mixture more efficiently in every way than any other Petrol Gas system on the market.

It should be noted that the "Rich" mixture is the only practicable proposition for heating and cooking by Petrol Gas. The cost of Petrol Gas production advertised to the public by one or two traders is misleading, as much as 1,500 cubic feet of "Weak" mixture Petrol Gas being advertised to cost only 1/6, but this attractive figure is quite illusory. The *pro rata* consumption per burner should be considered, as set out hereunder. For instance, a 50 candle power Aerogen Gas Burner will consume about 3½ cubic feet of "Rich" gas per hour, whereas a 50 candle power "Weak" mixture Petrol Gas Burner consumes about 10½ cubic feet per hour. The following is a table of different gas consumptions, according to the value of the gas made by the machine:—

	500 cub. ft. of air to one gallon of petrol.	1,000 cub. ft. of air to one gallon of petrol.	1,500 cub. ft. of air to one gallon of petrol.
Bijou Burner, 50 c.p. ...	3½ cub. ft. per hour.	7 cub. ft. per hour.	10½ cub. ft. per hour.
Miniature Burner, 25 c.p.	2 cub. ft. per hour.	4 cub. ft. per hour.	6 cub. ft. per hour.

It is emphasised that these figures represent the maximum results obtainable from Petrol Gas whatever the name or make of the machine may be, and exaggeration of the above-stated results is wholly incapable of substantiation by properly conducted Photometric tests, nor will juggling with different sizes of burners and mantles alter scientifically determined facts.

## **EFFICIENT CARBURATION.**

This is a vital factor when the demand is for Heating and Cooking as well as Lighting, for suddenly varied loads will affect the gas mixture with all systems except the Aerogen, and the use of Gas Fires and Cookers calls for a machine with a Carburettor designed to prevent varying results. Our ROTARY ARCHIMEDIAN QUADRUPLEX SPIRAL CARBURETTOR is the only Carburettor which rotates when gas is used, and its action absolutely prevents extreme variation of internal temperature with consequently uneven carburization. These results cannot be obtained with a stationary or zig-zag type of Carburettor. These zig-zag surface plates in other machines become intensely chilled by the rapid evaporation of petrol in a limited area. This intense cold retards the vaporization of the petrol, thus resulting in a weakened mixture of gas and consequent interference with the lighting and other burners in the installation, necessitating repeated regulation and re-regulation to try and rectify the trouble set up by faulty carburization. Attempts have been made to overcome this freezing action with the fixed type carburettor by immersing it in stagnant water, but this is useless, for without the turbulent water set up by the ROTARY ARCHIMEDIAN SCREW of the Aerogen Carburettor and the maintenance of equable temperature within the vapourizing channels, no permanently uniform carburization for non-varying lighting and heating results can be expected.

# **The "Aerogen" Gas Generator.**

## **MANUFACTURE AND CONSTRUCTION.**

The Aerogen Plant is made throughout in our own London works by highly skilled and long service mechanics; it is constructed on sound engineering lines, and carefully tested before dispatch. All Aerogen Plants may implicitly be relied upon to be delivered set ready for immediate duty.

## **DURABILITY AND EFFICIENCY.**

The combination of metals ensures a long life for the apparatus, with freedom from repairs and renewals, many machines having been in constant use for over eighteen years without needing overhauls, repairs, or expert attendance from the mechanical valves or other delicate parts liable to get out of order. It is not generally known that copper or brass when placed in water sets up a galvanic or electrolytic action, particularly at the soldered joints, which quickly corrode and leak, action. Those interested in the scientific aspect of the Petrol Gas Industry will be afforded an opportunity of inspecting an Aerogen Spiral Carburettor after 14 years service, and at the same time compare it with a Zig-Zag Copper Carburettor which has only been in use for a fraction of that time.



Since prospective purchasers contemplate considerable expense for an installation, it is well worth their while to investigate the veracity of the claims made by the makers of the various types of machines offered to the public.

### METHOD OF AEROGEN GAS GENERATION.

The box-shaped tank shown in the illustration on front page, contains the petrol. A wheel fitted with a number of small cups passes through the petrol. When the machine is working, an accurately measured quantity of petrol is picked up by these cups discharging their contents into a funnel from which it is conveyed to the ARCHIMEDIAN SPIRAL CARBURETTOR fitted inside the large circular drum in an oblique position. The Spiral compresses and carburets air simultaneously, and its rotary screw action delivers the gas into the bell of the Anti-fluctuator (the round tank at top of frame). Air enters the compressor through the port holes at the top of a vertical pipe in the centre of the Anti-fluctuator, by suction from the Spiral Carburettor. The Plant is automatically controlled by vacuum set up when the Gas Bell in the Anti-fluctuator rises and seals off the air inlet port holes. It should be noted that vacuum is a physical law, and not a mechanical device liable to get out of order. The Aerogen Plant is the only one that relies on vacuum to stop the working of the machine the moment gas consumption in the house has entirely ceased. This method of stopping the machine is the most important detail in the whole system. Any gas making machine which is mechanically controlled is liable to flood the carburettor with petrol in the event of any failure of the mechanical brake. Most of the petrol gas machines on the market are fitted with mechanical brakes.

### AUTOMATIC SERVICE.

The machine requires no attention beyond keeping it clean, winding up the weight, and filling with Petrol, duties which occupy a few minutes only each day, which any unskilled person, even a housemaid, can perform. Gas is generated according to the duty required, directly one or more burners are turned on, the machine works and provides exactly the amount of gas necessary, and if all burners are turned off, it stops working, being quite self-controlled, and production in excess of the demand is quite impossible.

### GUARANTEE.

All Aerogen Plants are guaranteed for Five Years, during which period we undertake to make good free of charge, any defect due to faulty materials or workmanship.

## Utility of "Aerogen" Gas.

### LIGHTING.

A beautiful, brilliant yet soft, silent, and steady light is produced from incandescent burners and mantles. Eye Specialists have stated that Aerogen Petrol gas is the best artificial illuminant that it is possible to obtain. Colours can be matched as correctly as by daylight.

### LIGHTING FITTINGS.

All types of wall Brackets, Pendants, movable table and floor standards are supplied, in plain, inexpensive, and artistic period designs according to taste.

### COOKING.

Gas Stoves, Rings, Grillers, etc., of all kinds are successfully used on exactly the same lines as with ordinary Town Gas, and with equal efficiency. No objectionable odours are given off. Aerogen petrol air safety gas is the cleanest gas known.

### HEATING.

Gas Fires and Heaters of any design can be used. Owing to the purity and safety of the gas, flues are not necessary, the whole of the heat being kept in the room, instead of a large percentage passing up the shaft or chimney. An efficient Hot Water supply can be obtained by means of geysers etc.

### TOWN COMFORT IN THE COUNTRY HOME.

The gas is conveyed through piping to the various points like ordinary Gas. All the various modern labour saving gas appliances obtainable in towns and cities can be used in a country house, where the Aerogen plant is installed; one plant only being required for Lighting, Cooking, and Heating.

### CHEMICAL LABORATORIES.

The Aerogen system provides a perfect substitute for Coal Gas, in Works, School, and Research Laboratories no matter how remotely situated. The flame produced with special bunsens and other burners is identical in all respects to ordinary gas and is of equal temperature. For glass blowing Aerogen Gas is better than coal gas as with coal gas blurring often occurs. Bunsens, Blowpipes, Mekers, Flat-flame, Argands, Boiling Rings, Muffle and Combustion Furnaces, etc., of every type can be supplied.

### VILLAGE LIGHTING.

We shall be pleased to tender for the lighting of small country towns and villages, for which the Aerogen system has been found eminently suitable, over 100 Country villages and towns being lighted by Aerogen Gas. The first Aerogen Village Lighting plant was successfully installed 26 years ago for the small community at Breukelen in Holland.



# TOWN COMFORT IN THE COUNTRY HOME.

THE AEROGEN WEIGHT DRIVEN MACHINE AS ILLUSTRATED ON FRONT PAGE.  
PRICES AND PARTICULARS.

Code Word.	Size	CAPACITY IN BURNERS OF			Balance Weight required. Cost according to market	DIMENSIONS.			Gross Weight cwt.	PRICES: Including pulleys, wire ropes, spanners, and filling funnel. Packing extra.
		25 Candle Power.	50 Candle Power.	Laboratory Bunsens		Length.	Width.	Height.		
*Midget	x	15	8	6	About 2½ cwt.	2' 0" x 1' 6" x 2' 2"			3	£ 40 0 0
Bijou	0	25	15	10	3 "	2' 6" x 1' 8" x 3' 6"			3	50 0 0
Unac	1	36	22	14	6 "	3' 0" x 2' 0" x 4' 4"			3½	60 0 0
Duo	2	55	30	20	9 "	3' 4" x 2' 0" x 5' 0"			4	75 0 0
Tres	3	80	50	40	12 "	3' 4" x 2' 0" x 5' 6"			4½	90 0 0
Quattuor	4	160	90	70	16 "	4' 0" x 2' 4" x 6' 8"			7	115 0 0
Quinque	5	220	140	100	20 "	4' 2" x 2' 8" x 6' 8"			9	145 0 0
Sex	6	425	245	170	30 "	4' 8" x 2' 10" x 7' 0"			12	190 0 0

The above-stated figures of capacity are guaranteed not to overtax the working of the generators, as a matter of fact our figures of output are understated.

- Weights are not included in above prices. Pattern can be supplied for local Iron Foundry, thus saving railway carriage from London.
- \* This size is of different design and includes a six sheave tackle. Extra charge for 8 sheave pulley tackle 18/-; for twelve sheave tackle 50/-. The sizes 0 to 5 are supplied with 12 sheave tackles; if sixteen sheave tackles are required £5 extra will be charged.
- Goods are supplied free on rail ex works. Extra charge for packing cases will be credited if returned carriage paid in good condition within a fortnight

## AEROGEN GAS GENERATORS DRIVEN BY ELECTRIC MOTOR.

For Country estates fitted with their own Electric generating plant, our special type of Electric Motor driven Gas plant provides an extremely useful adjunct, since the motive power is conveniently provided by means of a very small Electric Motor supplied with power from the existing electric system. Cooking and heating by Electricity from privately owned electric plants is, as a rule, not feasible, being much too costly. The amount of current consumed by the electric motor installed for driving the Aerogen Gas plant is very small indeed. Special estimates will be furnished on application, which should state number of cookers, etc. This type is perfectly automatic and reliable in its action, the motor being switched on and off by the slowly rising and falling Gas Bell of Storage Holder.

### BELT DRIVEN AEROGEN GAS GENERATOR (off existing power transmission shaft).

For Workshops, Laundries, and any establishment with running shaft, a simple, inexpensive belt-driven Aerogen Generator is recommended. Storage holders can be supplied to feed a few lights required after working hours. The generator is so constructed as to produce only the amount of gas actually consumed at burners notwithstanding the fact that it is propelled at a non-varying speed. If there is no gas consumption, no gas production nor petrol consumption takes place although the Shaft and Generator may be running at usual speed. Enquiries should state speed of shaft and sizes of any available pulleys.

### GAS GENERATORS DRIVEN BY WATER POWER.

This apparatus is suitable for all places where a cheap and abundant water supply exists. The water consumption is governed by a simple device, which automatically turns the water on and off as required. Applications for estimates should state full particulars as to the conditions of the existing water supply.

### ILLUMINATING POWER.

500 cubic feet of Aerogen Gas are produced from one gallon of good Petrol. The following table will enable intending purchasers to estimate the annual cost of lighting:—

1	cubic foot of Gas consumption per hour gives	16	candle power.
1½	" "	20	" "
2	" "	25	" "
3½	" "	50	" "
6	" "	120	" "

It will be seen from the reliable data which we give, that, light for light, Aerogen Gas is cheaper and more beneficial in every way than electricity. The latter is generally produced by petrol engines running at great speed, and the question of wear and tear, the inevitable noise and vibration caused by fast running machinery, and the necessity of providing for more or less skilled attention, are very serious disadvantages. A carefully conducted enquiry will certainly establish the fact that an expensive electric installation produces an expensive light, but nothing beyond a light. It does not produce warmth and ventilation, nor facilities for cooking and heating of bedrooms, etc., at a moment's notice, whereas the Aerogen system makes it possible to use ALL MODERN LABOUR SAVING APPLIANCES.

### AEROGEN GAS HAS BEEN ADOPTED BY—

H.M. WAR OFFICE.  
H.M. INDIA OFFICE.  
Y.M.C.A.

GOVERNMENT OF VICTORIA.  
GOVERNMENT OF NEW ZEALAND.  
GOVERNMENT OF SOUTH AFRICA.

THE PRINCIPAL RAILWAYS.

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